

### **ABSTRACT OF THE DISCLOSURE**

A process and medium for decontamination of water containing anionic species  
5 including arsenic and chromium, wherein compounds comprising divalent and trivalent  
metal oxides and sulfides are used to form surface complexes with contaminants under  
pH conditions within the range of potable water. In one embodiment natural and  
synthetic spinels and spinel-like materials are used as the sorbent substance.